

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Nagao et al.

Patent No.: 7,468,714

Issued: December 23, 2008

For: PLASMA DISPLAY PANEL DRIVING
METHOD AND PLASMA DISPLAY
PANEL APPARATUS CAPABLE OF
DISPLAYING HIGH-QUALITY
IMAGES WITH HIGH LUMINOUS
EFFICIENCY

Confirmation No. 1625

April 23, 2009

Costa Mesa, California 92626-7689

REQUEST FOR CERTIFICATE OF CORRECTION

ATTN: Certificate of Correction Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sirs:

Attached is a proposed Certificate of Correction to be issued in the above-identified case.

On the Cover Page of the Patent

The Foreign Priority Data of Japanese Application No. H10-250749, filed on September 4, 1998, Japanese Application No. H10-348072 filed on December 8, 1998, and PCT/JP1999/003873 filed on July 19, 1999 and published as WO 00/14711 on March 16, 2000 need to be added.

In the References Cited for U.S. Patent Documents:

Reference 6,426,732, 07/2002, Makino, was omitted and should be included as a cited reference.

In the Claims:

In Claim 56, Column 45, line 3, "wriffen image" should be --written image--

In Claim 59, Column 46, line 7, "that staffs to" should be --that starts to--

In Claim 65, Column 48, line 12, "between. the" should be --between the--

A copy of front page of the parent US Patent No. 6,653,993 listing this priority information is enclosed.

Please charge our Deposit Account \$100 to cover the fee for this request.

If there are any questions with regard to this matter, please contact the undersigned attorney at the listed telephone number.

Very truly yours,

SNELL & WILMER L.L.P.

A handwritten signature in black ink, appearing to read 'J. Price', is written over a horizontal line.

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US006653993B1

(12) **United States Patent**
Nagao et al.

(10) Patent No.: **US 6,653,993 B1**
(45) Date of Patent: **Nov. 25, 2003**

- (54) **PLASMA DISPLAY PANEL DRIVING METHOD AND PLASMA DISPLAY PANEL APPARATUS CAPABLE OF DISPLAYING HIGH-QUALITY IMAGES WITH HIGH LUMINOUS EFFICIENCY**
- (75) Inventors: **Nobuaki Nagao, Uji (JP); Hidetaka Higashino, Kyoto (JP); Junichi Hibino, Neyagawa (JP)**

- (73) Assignee: **Matsushita Electric Industrial Co., Ltd., Osaka-fu (JP)**

- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

- (21) Appl. No.: **09/786,384**

- (22) PCT Filed: **Jul. 19, 1999**

- (86) PCT No.: **PCT/JP99/03873**

§ 371 (c)(1),

(2), (4) Date: **Mar. 2, 2001**

- (87) PCT Pub. No.: **WO00/14711**

PCT Pub. Date: **Mar. 16, 2000**

- (30) **Foreign Application Priority Data**

Sep. 4, 1998 (JP) 10-250749
Dec. 8, 1998 (JP) 10-348072

- (51) Int. Cl.⁷ **G09G 3/28**

- (52) U.S. Cl. **345/60, 345/66**

- (58) Field of Search **345/60, 66, 67; 315/167.3, 167.4**

- (56) **References Cited**

U.S. PATENT DOCUMENTS

4,087,805 A 5/1978 Miller
4,104,563 A 8/1978 Schlig et al.
4,140,945 A 2/1979 Trogdon
4,562,434 A * 12/1985 Amano 345/67
4,570,159 A 2/1986 Criscimagna et al.
5,142,200 A 8/1992 Yamamoto et al.

5,663,741 A * 9/1997 Kanazawa 345/66
6,011,355 A * 1/2000 Nagai 315/169.3
6,084,559 A * 7/2000 Nagao et al. 345/67
6,292,159 B1 * 9/2001 Someya et al. 345/60
6,483,487 B2 * 11/2002 Iseki 345/60
6,512,501 B1 * 1/2003 Nagaoka et al. 345/66

FOREIGN PATENT DOCUMENTS

EP 102462 3/1984
EP 762461 3/1997
EP 779643 6/1997
JP 736408 2/1995
JP 2616663 3/1997
WO 9831001 7/1998

OTHER PUBLICATIONS

"Wire and Erase Waveforms of High-Resolution AC Plasma Display Panels," by T. Criscimagna et al., 2320 Proceedings of the SID 22 (1981) No. 4.

"Sustain Drive with Reduced Peak Sustain Current and Full Sustain Margin," by T. Criscimagna, IBM Technical Disclosure Bulletin, vol. 25, No. 73, Dec. 1982.

"Plasma Panel Write Waveform with Avalanche Control," by J.R. Beidl et al., IBM Technical Disclosure Bulletin, Vol 21, No. 3, Aug. 1978.

"9.4: Low Voltage Selection Circuits for Plasma Display Panel," by T. Criscimagna, 1975 SID Int'l Symposium, Apr. 22-24, 1975.

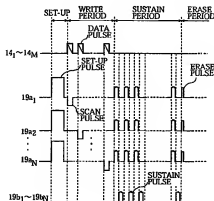
* cited by examiner

Primary Examiner—Amare Mengistu

- (57) **ABSTRACT**

Set-up, write, sustain and erase pulses are variously applied to a plasma display panel using a staircase waveform in which the rising or falling portion is in at least two steps. These staircase waveforms can be realized by adding at least two pulses. Use of such waveforms for the set-up, write and erase pulses improves contrast, and use for the sustain pulses reduces screen flicker and improves luminous efficiency. This is of particular use in driving high definition plasma display panels to achieve high image quality and high luminance.

16 Claims, 43 Drawing Sheets



UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO. : 7,468,714
APPLICATION NO. : 10/630,586
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INVENTOR(S) : Nobuaki Nagao et al.

Page 1 of 1

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Cover Page of the Patent

The Foreign Priority Data of Japanese Application No. H10-250749, filed on September 4, 1998, Japanese Application No. H10-348072 filed on December 8, 1998, and PCT/JP1999/003873 filed on July 19, 1999 and published as WO 00/14711 on March 16, 2000 need to be added.

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This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.